me to the extent that I must pass along my appreciation.

The scholarship was most enjoyable, certainly, but the insight into the human and sometimes less than normally human attributes of physicians, however elevated in professional stature, was even more intriguing.

The fact that I have agreed with the article's tenets for some decades, of course, creates an even greater sense of gratification in reading the excellent prose.

Congratulations to the author on her literary and intellectual efforts.

ROBERT D. DUNBAR, MD
Modesto, California

Psychiatric Symptoms of Neurosyphilis

TO THE EDITOR: This is regarding the article entitled "The Great Imitator, Syphilis" in the May 1981 issue.[1] All in all it was an excellent article, well written and of course very timely.

I wonder if Dr. Fitzgerald would be willing to comment a little on aspects of tertiary syphilis that we in psychiatry have to bear in mind. I believe it is a point not covered in the article.

Treatment of incidental infections with penicillin or other antibiotics will often convert the peripheral blood VDRL. The physician then, in getting either routine studies or serologic studies in suspected cases, may be lulled into a false sense of security. After the treatment of the incidental infection and the conversion to seronegative peripheral blood, is not the disease then permitted to continue, often not surfacing until the tertiary stage? Would Dr. Fitzgerald perhaps have some helpful hints on how to make a diagnosis of paresis in such a case?

Recently I became sensitized to such a case. The patient was a 59-year-old Puerto Rican man of Carribe extraction. Clinically he presented as a paretic. The VDRL peripherally was negative and it was only when clinical evidence forced me to do a lumbar puncture and an FTA-ABS (fluorescent treponemal antibody absorption test), which turned out positive, that we were able to make a diagnosis and initiate treatment.

With the ever-increasing use of antibiotics to treat minor illnesses and with the increasing incidence of venereal disease in general and syphilis in particular, is not this a danger that we are overlooking?

J. M. STUBBLEBINE, MD
Greenbrae, California

REFERENCE

1. Fitzgerald F: The great imitator, syphilis—Medical Staff Conference, University of California, San Francisco. West J Med 134: 424-432, May 1981

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The Author Replies

TO THE EDITOR: Dr. Stubblebine raises a most important point. Syphilis at one time was said to account for 10 percent to 20 percent of admissions to state mental hospitals.[1] Though this is no longer the case, syphilis must still be considered in the differential diagnosis of almost every mental disease. As Dr. Stubblebine implies, antibiotic therapy may have altered the classical clinical patterns of neurosyphilis.[2] Though it is generally accepted that antibiotic therapy which leads to reversion to seronegativity in early syphilis constitutes a "cure,"[3-5] two unresolved issues confound absolute surety on this point. First, of course, is that spontaneous reversion to seronegativity is common even in *untreated* lues, and a quarter to a half of all patients with late syphilis will have a negative serum VDRL.[2,6] In one study, only 48.5 percent of neurosyphilitic patients—some of whom gave a history of previous therapy for syphilis—had reactive serologic tests for syphilis.[2] The second issue to be considered touches upon the data which suggest the persistence of spirochetes in central nervous system (CNS) tissue in spite of putatively adequate penicillin therapy and negative serum VDRL.[6]

It is best to rely, as did Dr. Stubblebine, on clinical clues. Psychiatrists might well be the first physicians consulted by the victims of neurosyphilis. Meningovascular syphilis may simulate psychoneurosis,[1] as the rare gummatous mass in the CNS can look like a brain tumor and induce personality changes. In a study of more than 200 patients with CNS lues in the penicillin era, about 9 percent had "organic brain syndrome," 5 percent depression, 3 percent mania and 2 percent other personality changes.[2]

The onset of the psychiatric symptoms of general paresis can be insidious, first noticed by family and friends rather than the patient: loss of ambition at work, memory lapses, irritability and a decline in attention to personal affairs. Later, patients may present with mental changes simulating schizophrenia, euphoric mania, paranoia, toxic psychoses or presenile dementias. The last is most common, with depression, confusion and severe impairment of memory and judgment. In the last stages of the disease, occurring generally within five years of the onset of symptoms, almost

all patients with general paresis are demented, often with periodic convulsions and progressive vegetative degeneration until they die.

Because syphilis is pleomorphic in its presentation, unexplained psychiatric disease should raise the suspicion of lues. Results of careful neurologic examination, especially in the early stages of the disease, may be entirely normal even in the face of pronounced mental changes.[7] The serum FTA-ABS is positive in 95 percent or more of all patients with general paresis.[6] Lumbar puncture may show a positive VDRL, although only 57 percent of patients with neurosyphilis in one series had CSF serology positive.[2] A positive serum FTA-ABS, with CSF mononuclear pleocytosis or an elevated protein value (or both) confirm the diagnosis for all practical purposes and should lead to appropriate therapy.

FAITH FITZGERALD, MD
University of California, Davis, School of Medicine
Davis, California

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2. Hooshman H, Escobar MR, Kopf SW: Neurosyphilis—A study of 241 patients. JAMA 219:726-729, Feb 7, 1972
3. Fiumara NJ: Treatment of primary and secondary syphilis—Serological response. JAMA 243:2500-2502, Jun 27, 1980
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5. Barrett-Connor E: Current status of the treatment of syphilis. West J Med 122:7-11, Jan 1975
6. Sparling PF: Diagnosis and treatment of syphilis. N Engl J Med 284:640-652, Mar 25, 1971
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Another Method of Water Purification for Travelers

TO THE EDITOR: The article by Zemlyn, Wilson and Hellweg[1] on iodine for water purification in the August 1981 issue discussed crystalline iodine and organic iodine tablets, tetraglycine hydroperiodide, for use by backpackers for purification of drinking water. They recommended the latter.

The authors' point may well be valid, but there appears to be a much better method than either of those discussed. Povidone-iodine (Betadine) 10 percent solution is stable, safe and packaged in several sizes, including a ½ oz plastic squeeze bottle. The latter is very convenient for travelers but is not available in most pharmacies, undoubtedly because of insufficient demand. Two or three drops per glass or eight to ten drops per liter provides 3 to 4 ppm, which is sufficient to kill coliform bacteria in one or two minutes. Time required for killing viruses and *Giardia* and *Entamoeba* cysts is less clear, but may be as long as 30 minutes in very cold water; less at room temperature. The taste is quite tolerable.

Recently I contacted the manufacturer, Purdue Frederick, and learned that almost no inquiries have been received in the United States about povidone-iodine's use for drinking water purification, but that it is included for this purpose in emergency military kits in several other countries. An additional advantage, of course, is its value as a wound disinfectant and for the treatment of the various sores and superficial fungal infections so common to travelers.

CHARLES B. BEAL, MD
Palo Alto, California

REFERENCE

1. Zemlyn S, Wilson WW, Hellweg PA: A caution on iodine water purification (Information). West J Med 135:166-167, Aug 1981

Correction: Formula to Calculate Serum Osmolality

IN THE AUGUST Medical Staff Conference, "Acute Methanol Poisoning," the formula for calculating serum osmolality was printed incorrectly on page 125. It should read as follows:

$$2 \times Na + \frac{BS}{18} + \frac{BUN}{28} = 285 \pm 4.2 \text{ mOsm/kg } H_2O.$$

Na = serum sodium concentration, mEq per liter
BS = blood sugar concentration, mg per dl
BUN = blood urea nitrogen concentration, mg per dl